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Manipulation of electrically charged drops on a vibrating bath
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— The bouncing drop experiment, which allows to store small drops thanks to the vibration of a liquid interface, is sometimes linked to lab-on-a-chip applications. Unfortunately, a lot of these studies focused on the behavior of the bouncing drops instead of their handling. By electrically charging the droplet, we found that an electric field can control the displacement of a droplet stored on a vibrating bath. Even though the charged droplets seems to move with a constant speed at the bath scale, their behavior is shown to be much more complex at the droplet scale. A theoretical model, based on the movement of the droplet during one bounce, has been developed to explain these observations and to understand how to manipulate a droplet without contact with any interfaces.

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